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ABSTRACT

Digital reference services (also known as "AskA" services, as in "Ask-an-Expert") provide subject expertise and information referral over the Internet to their users. This ERIC Digest provides an overview of the growing digital reference movement and its implications on sponsoring organizations, and examines current practices in the creation and maintenance of such services. Following a brief definition of digital reference, discussion includes the evolution of digital reference; implications of these Internet-based question-and-answer services; how digital reference services work; and the six-step process of building and maintaining digital reference services. Includes a list of references and readings. (Author/AEF)

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# ERIC Digest
# March 1999

**By:**

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# Building and Maintaining Digital Reference Services

by Joann M. Wasik

Easily accessible digital information has rapidly become one of the hallmarks of the Internet. Online resources have surged in popularity as more individuals and organizations have connected to the global network. Thousands of organizations have turned to Internet-based information delivery as an effective and cost-efficient alternative to traditional communication methods, and many have expanded their services further by interacting with their users and responding to inquiries via the Internet.

Digital reference services (also known as "AskA services," as in "Ask-an-Expert") provide subject expertise and information referral over the Internet to their users. This Digest provides an overview of the growing digital reference movement and its implications on sponsoring organizations, and examines current practices in the creation and maintenance of such services.

## What is Digital Reference?

Digital reference and AskA services are Internet-based question-and-answer services that connect users with experts in a variety of subject areas. In addition to answering questions, experts may also provide users with referrals to other online and print sources of information. As opposed to traditional expert systems that attempt to capture and model problem-solving tasks in a manner similar to humans, digital reference services use human intermediaries, or experts, to answer questions and provide information to users. The question/answer process in digital reference services is modeled after the methods practiced by reference librarians in traditional library settings. As in a face-to-face interview, experts determine the amount of information appropriate for the user, the applicability of that information, and the level of information required. User queries must occasionally be clarified, and an online reference interview may be conducted to help define the user's information needs.

## History of Digital Reference

The origins of digital reference can be traced to the library field, where libraries sought to augment traditional services by providing reference assistance in an electronic environment. One of the first services to go online was the Electronic Access to Reference Service (EARS), launched by the University of Maryland Health Services Library in Baltimore in 1984 (Wiese & Borgendale, 1986). Although initial e-mail-based digital reference efforts received little attention from patrons (Still & Campbell, 1993), digital reference services proliferated over time and became increasingly popular, eventually spawning such internationally-known services as AskERIC in 1992 and the Internet Public Library in 1995.

During the past several years, digital reference services have become important and effective resources for meeting the information needs of thousands of users, and the number of user requests to these service has continued to increase. In September of 1996, KidsConnect, a question-and-answer, help, and referral service for K–12 students on the Internet, experienced 1000% growth— from 20 questions a week to 200 questions per week (Lankes, 1998). With proper planning, AskA services can effectively manage high volumes of questions and prevent disruptions in service. Services that are launched prematurely, however, may not be prepared for the potential impact a global audience may have on their organizations.

## Implications of Digital Reference

The dynamic nature of the Internet creates an ever-changing information environment and transforms the way information is delivered and accessed. As greater numbers of users connect to the Internet, user expectations for more immediate access to information and knowledge resources steadily rises. While many organizations realize that their best response to shifting user demands is proactive rather than passive service (Cargill, 1992), the online environment can raise important issues for those interested in offering digital reference services.

The creation and maintenance of Internet-based question-and-answer services can be fraught with difficulties. AskA services often struggle with issues such as how to maintain consistent quality of service, which user populations to serve, and how to respond to question overload. The need to secure funding for continued operation also figures prominently in the building and maintaining of digital reference services. Many services devote much time to the pursuit of grants, corporate sponsorship, or non-profit status (Wasik, 1998). Despite such potential problems, organizations offering digital reference services find many rewards. AskA services serve the public good by providing valuable information in a timely fashion, and have the potential to gain international visibility. Parent organizations of many services reap enhanced public relations benefits by having satisfied users and by providing high-quality information. Accessible 24–hours a day and unrestricted by geography, digital reference services are a powerful means for the free exchange of information and the promotion of interactive learning.

A lack of information resources for practitioners of digital reference, however, has allowed many AskA services to go online without a clear understanding of either the process of digital reference itself or how to develop and manage such services effectively. Since many of these services struggle and sometimes fail altogether, methods and standards have been proposed to ensure a consistent level of quality for digital reference and to provide guidance in the introduction of new services. Organizations interested in offering Internet-based information services must understand not only the fundamental tenets of the question-and-answer process, but also how this information is processed and translated into actual service.

## How Digital Reference Services Work

Although there are slight variations among services, all digital reference and AskA services function in a similar manner. Human intermediaries evaluate incoming questions via e-mail or Web inter-



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face, and then decide on an appropriate course of action. New questions may be checked against an archive of previously answered questions for an appropriate answer, and if no suitable answer is found, passed along to an expert for answering. The expert supplies the necessary information, which may consist of an actual answer (factual information), pointers to additional resources (information referral), or some combination. Responses are sent to the user's e-mail address or posted to a Web site for the user to access at a later date. In some smaller AskA services, the experts themselves may also monitor the incoming questions.

The task of creating and managing Internet-based question-and-answer services is complicated by the ever-changing nature of the Internet. Lankes (1998☎) examined exemplary K–12 AskA services to determine how such services answered questions, processed information, and operated in a highly complex online environment. Lankes identified five fundamental components that commonly exist in the methods used by digital reference services to answer questions, and which in turn form the basis of a conceptual framework, or "meta-description," of the question/answer process.

Services receive questions electronically (*Question Acquisition*), then route the questions to an appropriate expert according to a set of internal rules. The questions progress to a *Pool of Possible Respondents*, where they are queued according to some criteria, such as user need, date received, etc. In services staffed by multiple experts, some sort of triage may be initially performed to help expedite the answer process, such as selecting the best expert to answer a particular question. The expert composes an answer in compliance with service policy (*Expert Answer Generation*), and replies are sent to the users (*Answer Sent*). The final component of Lankes' meta-description, *Tracking*, identifies popular subjects and trends that may be used to compile statistics or generate archives.

Viewed in its entirety, the meta-description reveals a level of convergence in the volatile online environment. By identifying a set of common methods in the question/answer process, organizations may develop a series of planning documents to assist in the creation and ongoing maintenance of digital reference services.

## Building and Maintaining Digital Reference Services

Based on Lankes' meta-description, a six-step process was developed to aid organizations in the creation and operation of digital reference services (Lankes & Kasowitz, 1998☎). The *AskA Starter Kit* describes each of the six steps in a series of instructional modules. The information presented in the *AskA Starter Kit* is applicable to a wide variety of organizations and audiences including the K–12 education community, government agencies, libraries, and industry. The six stages are briefly outlined as follows:

1. **Informing:** Nascent AskA services conduct preliminary research both into the field of digital reference and into existing services in their area of expertise.
2. **Planning:** AskA services' policies, procedures, and methods must be developed and evaluated to ensure alignment with overall organizational goals.
3. **Training:** The development of a comprehensive training plan, including training materials, activities, and tools, is necessary for the preparation of an effective staff.
4. **Prototyping:** Many digital reference services fail because they are launched prematurely. Services that are first pilot-tested in a controlled environment can identify and correct problems with minimal inconvenience.
5. **Contributing:** Upon launching an AskA service, it is important to institute the development of ongoing publicity and resource development to support the service.
6. **Evaluating:** As with any service, digital reference services benefit from regular evaluations to ensure a quality product and to gather data for continued support from the organization.

The six-step process reveals an overall methodology that many digital reference services do not employ. Due to inadequate planning and perhaps inexperience with Internet-based information delivery systems, many services experience question overloads and are often forced to cease operations as a result. Systematic planning and training such as that outlined in the *AskA Starter Kit* can help digital reference practitioners create robust, high-quality services.

In today's rapidly changing information environment, digital reference and AskA services are important tools that support learning and promote intellectual inquiry. The need for specialized training and information resources for digital reference providers has become increasingly critical as the popularity of such services continues to grow. Without proper planning and without an understanding of digital reference practices, many services will experience significant difficulties. New research and information resources, however, seek to promote standards and practices to ensure high-quality service, and the effective creation and maintenance of exemplary digital reference services.

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